

BIGHORN NATIONAL FOREST

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Revised Land and Resource Management Plan

# Forest Plan Implementation

# Table of Contents

<b>Appendix A.....</b>	<b>A-1</b>
THE ROLE OF THE BIGHORN NATIONAL FOREST PLAN.....	A-1
Forest Plan Implementation .....	A-1
Implementation Guidance for Specific Standards and Guidelines.....	A-4
Elk Security Guideline.....	A-4
Objective 2c, Livestock Grazing Strategy 1 .....	A-6
Objective 2c, Livestock Grazing Strategy 1 .....	A-8
Biodiversity Guideline #4 (Old Growth Timber) .....	A-8
Biodiversity Guideline #9 (100'-300' Riparian).....	A-9
MAPS REFERENCED IN SPECIFIC STANDARDS AND GUIDELINES OR USED IN IMPLEMENTATION	
DIRECTION.....	A-10
Bighorn National Forest elk security areas, potential and existing.....	A-11
Bighorn National Forest Appropriate Management Response (AMR) .....	A-12
Bighorn National Forest historic districts.....	A-13
Bighorn National Forest municipal watersheds.....	A-14
Bighorn National Forest lynx analysis units.....	A-15
Bighorn National Forest Preacher Rock Bog and Willow Swamp.....	A-16
Bighorn National Forest crucial big game winter range and elk parturition areas .....	A-17
Bighorn National Forest range suitability.....	A-18

## A

## The Role of the Bighorn National Forest Plan

The Bighorn National Forest Land and Resource Management Plan (Revised Plan) establishes programmatic direction that is used as a framework for decision-making at the project level. As such, the Revised Plan is but one part of a multi-level, decision-making framework. In order to comply with NEPA, the Endangered Species Act, the Clean Water Act, and other environmental laws, it is necessary to perform site-specific environmental analysis at a project level. This site-specific analysis is done prior to making a commitment of resources. It is impossible to prepare a forest plan and Final Environmental Impact Statement (FEIS) of sufficient specificity to identify and adequately analyze all projects or activities which may occur in the 10-15 year planning period. The Eighth Circuit Court of Appeals in *Sierra Club v. Robertson*, 28 F.3d 753 (8th Cir. 1994) recently described the nature of forest plans:

A forest plan is, in essence, a programmatic statement of intent that establishes basic guidelines and sets forth the planning elements that will be employed by the Forest Service in future site-specific decisions.

In accomplishing this task, the Revised Plan establishes direction and makes decisions in six areas:

- ◆ Goals and objectives for management.
- ◆ Forestwide standards and guidelines.
- ◆ Management area prescriptions.
- ◆ Land that is suitable for timber production and the allowable sale quantity and other resource outputs, all of which are estimates.
- ◆ Monitoring requirements to help determine how well the standards and management direction are working and whether the goals and objectives remain appropriate throughout the plan period.
- ◆ Wilderness recommendations.

## Forest Plan Implementation

The Revised Plan is a broad programmatic framework for ecosystem management as outlined above. It describes desired conditions for each of the management areas across the Forest. It also outlines the general type of management activities that may take place in

the management areas in order to achieve these desired conditions. The actual management actions and associated resource commitments require a site-specific analysis and decision. Accordingly, these site-specific projects are the tools used in actually implementing the Revised Plan and ecosystem management.

A number of different steps are used to make the transition between forest plan decisions and project or activity-level decisions. These steps have been modified in recent years to address needs at a broader landscape level. The following is a short step-by-step summary of how the Revised Plan may be implemented:

**Consider ecosystem function and integrity**

In implementing ecosystem management, we must provide for the long-term integrity and function of ecosystems, including their human components. As such, the scale of management actions and associated analysis will vary depending on individual ecosystem needs. In some cases, this means a rather narrow focus. In others, it may mean a landscape-level focus. For example, the simple replacement of a cattle guard should require a rather narrow focus because it impacts little else. On the other hand, watershed restoration requires a much broader perspective because of a wider range of impacts. The spatial and temporal scales used depend on the situation. When a landscape scale, or simply a systematic approach to implementing the Revised Plan is desired, the geographic areas described in Chapter 3 will serve as a basic area for further analysis. When single-purpose projects having little or no effect on other resources are analyzed, a much smaller project area can be delineated.

**Describe existing conditions - What is the area like now?**

In this step data is gathered, and the physical and biological condition of the area is described. Data may come from files, data bases, recovery plans, researchers, surveys, members of the public, and the forest plan.

**Describe desired conditions - What do we want the area to be like?**

Desired conditions for the area are usually generated from the forest plan, public participation, previous analyses, and from evaluations of the current condition. Desired conditions should be based upon ecosystem capability, sustainability, variability, and functions and on human desires and needs. These desired conditions essentially become the management goals for the area.

**List possible activities**

Comparing existing conditions with desired conditions could yield a list of discrepancies. Wherever these discrepancies occur, there are management needs and opportunities. A list of possible management activities should be developed to address these needs and opportunities. This list of possible management activities becomes an inventory of potential proposed actions which could be considered for future detailed environmental analysis.

### **Assess potential proposed actions**

The list of potential proposed actions should be sorted into logical groupings; for example, actions that are similar, connected, or of the same priority. The potential proposed actions or groups of actions should be evaluated for consistency and economic, social, and technical feasibility. Analysis of these actions should not be independent of one another. The proposed actions should be analyzed and implemented so that all ecosystem conditions in the area are moved toward the desired condition. Once again, the geographic areas described in Chapter 3 provide a means for this landscape level of analysis.

### **Prioritize the list of potential proposed actions**

Potential actions can then be prioritized based upon purpose and need, feasibility, budgets, targets, opportunity, or best intuition.

### **Select a proposed action or group of actions for site-specific, detailed analysis with public involvement throughout:**

- ◆ Develop the purpose and need for the action.
- ◆ Define the scope of the analysis.
- ◆ Develop alternatives.
- ◆ Analyze the proposed action and alternatives.

### **Document the analysis and make a decision**

The appropriate level of environmental and social analysis should be documented in an Environmental Impact Statement, Environmental Assessment, or Categorical Exclusion, depending on the level of significant or nonsignificant environmental impacts. A decision based on this analysis is then made by the appropriate Forest Service official.

### **Implement the action**

Carry out the project as described in the decision. This may involve developing work plans and monitoring plans and issuing permits or contracts.

### **Monitor and evaluate the results**

Was the action implemented as designed? Did the action achieve the desired results? How can future actions be modified to be more effective? Does the Forest Plan need to be amended? After the action is accomplished, the next step is the "recycling of knowledge." This is an assessment of the success of implementing the action. The Forest Service has an obligation to continually re-assess successes and failures to improve designs. This is known as adaptive management, and it is critical to successful implementation of ecosystem management. A review of costs, outputs, effects, and results should be included. The public should be very involved in this assessment.

## Implementation Guidance for Specific Standards and Guidelines

The following section describes the rationale for the development of certain standards and guidelines (additional documentation may be added later).

### ***Elk Security Guideline***

Considerable effort went into the definition and modeling of **elk security** habitat. It is anticipated that elk security will be the only method of analyzing habitat for this Management Indicator Species (MIS), at the forestwide, geographic area, and project scales. Elk security areas should be designed to retain elk on the Forest through the fall hunting and summer disturbance periods, and provide contiguous blocks of more dense forested cover with reduced human disturbances for other species. The intent of this guideline is to achieve no net decrease in the level of existing elk security from planned management actions (e.g., vegetation or travel management projects). It is recognized that natural disturbances (fire, insect and disease, blowdown) may remove the cover component of elk security habitat in an area, but this natural disturbance would not force a modification of a planned management action to make up for the “loss” of security habitat. Salvage harvest could occur in an area that was previously elk security habitat, but was burned, recognizing the need to achieve effective closures of constructed roads. Existing elk security acres at the time of the plan revision was approximately 47% of potential elk security areas, which equates to approximately 17% of the forested acres on the Forest.

Elk security is defined in Hillis et al. (1991), and its application was modified with slope considerations to encompass elk habitat effectiveness considerations as defined by results of local research (Sawyer 1997). Security applies to year-long habitat, as local research also documented elk undergo stress beginning in July, not just during hunting season. Security habitat may be enhanced by seasonal road closures on Level 2 roads, however this type of closure is not relied upon due to volume of traffic (foot and otherwise) on “gated” roads. Snowmobile routes are not considered in security habitat, as other direction applies to elk calving area management. Refer to Hillis (1991) for other road placement considerations during project analysis.

Elk hiding cover is defined as vegetation capable of hiding 90% of a standing adult elk from the view of a human at a distance equal to or less than 200 feet (Lyon and Christensen, 1992). Smith and Long (1987) also provide descriptions of hiding cover with relation to vegetation management activities.

The following description provides guidance at modeling and managing for this type of habitat:

Elk security is defined by Lyon and Christensen (1992) as “the protection inherent in any situation that allows elk to remain in a defined area despite an increase in stress or disturbance associated with the hunting season or other human activities.” A security area is any area that will hold elk during periods of stress.

On the Bighorn NF, existing elk security areas are defined as forested cover, preferably hiding cover (structural stages 3B, C and 4B, C with 60% or greater canopy cover, or

structural stage 5), of at least 250 acres in size, of non-linear arrangement (not less than 1,200 feet wide), with no openings within the stand greater than five acres as correlated to stand size (5 acres for 250-acre stands, or approximately 2% of the given stand size, that may be desirable for foraging habitat), and located greater than one-half mile from any open road (Operational Maintenance Level 2 – 5) or motorized trail. Potential security areas are defined as areas that are not currently existing security, but could be managed to create existing security, primarily through changes in open road densities or locations of Level 2 roads or motorized trails. Potential security was modeled with the same cover elements described above, but with only Level 3-5 roads buffered out one-half mile, as it was assumed that the level of investment in these roads was high enough to warrant not considering closing them, but that all other roads or trails were administratively closeable. Areas within one-half mile of Level 3-5 roads would never be considered potential security habitat, as these roads would presumably always exist.

At the project scale, management for elk security areas includes the above criteria with the following direction:

- ♦ Favor areas of non-harvested timber (unroaded) where less access is provided in the form of trails or past closed roads.
- ♦ Favor north-aspect, spruce-fir stands over other timber types, but provide a diversity of stands in relation to their natural distribution in the geographic area. This may also coincide with delineation or management for old growth conifer.
- ♦ Provide security areas in proportion to the natural distribution of slopes in the geographic area.
- ♦ Make sure security areas are well-distributed within and between geographic areas where possible, rather than grouped in one location in a larger block.
- ♦ Consider elements of topography that provide additional security when conducting project analysis. Non-forested areas may contribute to elk security, however are not recognized as part of the modeling process.
- ♦ At the project-scale, field-verify structural stage conditions of forested cover prior to project modeling or effects analysis. Verify existing and potential elk security at the project level, as forest-wide mapping has known errors or inconsistencies due to road classifications, cover components, or land ownership. Check provision of elk security at the geographic scale, as referenced below (% of watershed).
- ♦ Security habitat may also be moved through time on the landscape, as forested areas effectively regenerate and mature, and roads and trails are closed and move on the landscape.
- ♦ When closing and decommissioning roads to create or improve elk security, roads should be closed to discourage use by people as compared to the surrounding terrain. A variety of methods including slash, barriers (gates or boulders), re-contouring, reseeding, etc. may be employed along all or portions of the road to achieve this. Exceptions may include areas where a hiking trail is

## APPENDIX A

established, recognizing its impact on the effectiveness of the security area. The impetus for this consideration is evident from research conducted on hunter behavior, favoring any kind of road and trail to “undeveloped” terrain (Lyon and Burcham 1998).

Table A-1. Potential and existing elk security in geographic areas (2002).

Geographic Area	Total Acres in Planning Unit*	Percent Forested	Existing Security Habitat Acres and Percent of Total Area	Potential Security Habitat Acres and Percent of Total Area	Existing Security as a Percent of Potential Security Habitat
Clear/Crazy	155,936	72%	9,506 (6%)	29,735 (19%)	32%
Devil's Canyon	61,198	58%	5,685 (9%)	12,748 (21%)	45%
Goose Creek	116,952	80%	18,786 (16%)	43,053 (37%)	44%
Little Bighorn	141,815	69%	22,551 (16%)	33,855 (24%)	67%
Paintrock Creek	107,943	51%	5,992 (6%)	10,227 (9%)	59%
Piney/Rock	110,255	79%	30,988 (28%)	64,197 (58%)	48%
Shell Creek	140,130	48%	4,690 (3%)	14,780 (11%)	32%
Tensleep Creek	101,130	57%	647 (1%)	7,678 (8%)	8%
Tongue River	177,069	69%	26,976 (15%)	51,411 (29%)	52%
Totals	1,112,428	~60%	125,821 (11%)	267,684 (24%)	47%

### Objective 2c, Livestock Grazing Strategy I

#### Provide forage for livestock while managing to meet desired conditions.

This part of the livestock grazing strategy identifies a priority to manage for desired condition as identified in management area descriptions (landscape level) and allotment management plans (site-specific level). The intent and desire is to provide livestock grazing on the Forest while managing for desired conditions. The strategy does not



distinguish between “permitted,” “authorized,” or “actual” use; it does not define a desired stocking level.

**Provide forage for livestock at a level that strives to maintain or exceed the year 2004 permitted stocking level of 113,800 AUMs, while recognizing that stocking levels may be adjusted through the implementation of allotment management plans and administration of grazing permits.**

This part of the strategy addresses concerns expressed by members of the steering committee. They wanted the Revised Plan to include a set number of AUMs to work toward at a forestwide level. There were 113,840 AUMs permitted on the Forest as of December 2004.

Review by Bighorn National Forest Rangeland Management Specialists, however, indicates that it is highly unlikely the AUM level listed in this strategy can be achieved, maintained, or exceeded. This was described and disclosed at steering committee meetings, in county commissioner meetings, in individual discussions with steering committee members, in the effects analysis, and in responses to DEIS comments. While steering committee members acknowledged this, they expressed a strong desire that the Forest articulate intent to provide as high a level of permitted AUMs as is possible.

Rationale for the long-term decline in AUMs permitted forestwide is described in the FEIS; we expect a similar trend to continue. In many areas, we recognize that improvements in rangeland health have been made over time. While permitted stocking in 2004 was at 113,840 AUMs, actual use was approximately 84,000 AUMs (due to shortened seasons of use and fewer livestock numbers being stocked). Yet, forest plan monitoring indicates that, even at this level, there continue to be rangeland areas where livestock use of forage exceeds standards. There are also areas that are not meeting or moving toward desired conditions as a result of livestock impacts.

Stocking levels on the Bighorn National Forest are high relative to other Forests in the Region. The stocking levels on the Forest is 2.61 acres per AUM; the Region 2 average is roughly 6.22 acres per AUM (2002\_0328\_regional\_stocking\_msg.rtf). Rangeland vegetation standards and guidelines proposed for the 2005 forest plan revision are similar to those in the 1985 Bighorn National Forest Land and Resources Management Plan. On most allotments, either current management of rangeland vegetation is likely to continue (with similar goals, objectives, desired conditions), or management will need to be adjusted as “issues” are identified. The number of public comments to the DEIS that expressed concern about “poor permit administration and continuing grazing problems” was high (see FEIS Appendix J – Comments and Responses). We recognize that the public use of the Forest has increased, particularly for camping, fishing, wildlife viewing, water use, etc (see the social assessment in the Communities section of FEIS Chapter 3).

This increased use of the Forest by those other than stockmen results in an increase in management intensity levels required by these producers, and often adds to their expenses. Efforts to make the most of available forage are largely in the hands of term permit holders, and are outside the control of Forest management.

At the request of the steering committee, a provision was added in Livestock Grazing Guideline 11 directing Forest management to evaluate opportunities for designation of “forage reserve” allotments during allotment management plan (AMP) revision. While forage reserve allotments add to management flexibility and are considered an asset to management and other current permit holders, their designation could result in a reduction of total AUMs permitted on the Forest.

**Annually adjust authorized stocking levels to assure the meeting of appropriate standards and guidelines. Adjust permitted stocking levels as monitoring indicates it is needed to assure the meeting or moving toward desired condition objectives in a timely manner.**

This sentence was developed in an attempt to respond to DEIS comments expressing concern that flexibility in stocking is preserved so that livestock numbers and seasons of use are responsive to annual production levels as well as long-term trends. Note that annual and long-term adjustments in AUMs grazed could be represented by either increases or decreases in AUMs.

**Authorize grazing of forage by domestic livestock that will maintain resource health while contributing to community lifestyle, tradition, culture, open spaces, and to the local economy.**

This sentence was developed to respond to DEIS comments expressing concern that attributes of livestock grazing beyond desired vegetative conditions be included.

**Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and seasons of use.**

This sentence was developed in response to DEIS comments expressing a desire for assurance of AUM output in the Plan. The Forest acknowledges that it is in the interest of producers to have some degree of stability in their operations. While this statement will direct management to strive for stability, the Forest recognizes that conservative stocking levels lend themselves to greater stability in annual outputs than high stocking levels.

### ***Objective 2c, Livestock Grazing Strategy I***

**Share information and cooperate with livestock permittees, state and private agriculture organizations, universities, and research partners to communicate improved technology and other applications associated with resource uses, utilizing livestock as a management tool.**

This strategy was included in response to steering committee concern that all available means be enlisted to assure that the number of permitted AUMs is at as high a level as is possible.

### ***Biodiversity Guideline #4 (Old Growth Timber)***

Due to the importance of, and concern about, this topic, further clarification is warranted to guide implementation of this guideline and the associated strategy (under Obj. 1b, #8). To

track management of this resource, the guideline requires an inventory. This was envisioned as an integrated inventory using remotely sensed data and/or field surveys. The first generation of the inventory is generated by the timber modeling process using the Common Vegetation Unit (CVU) data (refer to the map in the administrative record). As field inventories are completed (per the strategy), the vegetation database will be updated to reflect the actual stands being managed for old growth timber. As wildfires or other disturbances occur, there will be additional updates to ensure the percentage requirements are still being met in each geographic area.

### ***Biodiversity Guideline #9 (100'-300' Riparian)***

While this guideline was developed for all riparian areas, additional focus was deemed necessary for forested habitats.

This area was not viewed as a “hands-off” management area with a buffer. In these areas, timber harvest objectives should emphasize other resource values (e.g., structural stage diversity, wildlife habitat). It was modeled for harvesting estimates with a coefficient to incorporate the information below (approximately 50% of normal volume in these acres). This was a forestwide scale estimate to recognize there may be some reduction in volume harvested at the project scale in these areas. It is important to recognize that these acres are suited in Management Prescriptions 5.11, 5.12, 5.13, and 5.5 but not 5.4. All silvicultural systems described in forestwide Silvicultural Standard 1 are available within this zone, as determined on a project-specific basis by an ID Team. ID Teams will evaluate the downstream and upstream conditions of this zone at a scale appropriate to the project and its anticipated effects.

The area was designed to provide a corridor along riparian areas where most animals will travel or inhabit. In forested areas, species specifically considered would include the American marten, the three-toed woodpecker, olive-sided flycatcher, and amphibians. It would also provide the most valuable habitat for concentrations of red squirrels, an MIS. This zone is important as a complex forested system typically occurs here due to the proximity to increased moisture (perennial streams) and longer fire return interval.

Within spruce-fir and Douglas-fir stands, it is anticipated that one of the most beneficial uses for this site would be to manage for old growth conditions as defined by Mehl. An exception to this would be riparian areas where shrubs (e.g., willows) or herbaceous vegetation are being succeeded by spruce/fir, in which case the spruce-fir may be removed to provide continued younger seral stage. Within lodgepole pine and ponderosa pine stands, more diversity in structural stages should be considered, particularly given shorter fire return intervals.

It is also noted that as slope increases (>45%), the values of the zone more rapidly decrease, due to removal from the microclimate influence. This can be factored in to the management of the area at the site-specific scale.

New roads should be discouraged in this zone. Existing roads and trails should receive maintenance priority to minimize erosion potential. Watershed or roads analysis should

dictate whether there is a need to move existing roads out of this zone (e.g., cumulative amount of roads within 300' zone in 6<sup>th</sup>-level Hydrologic Unit Code watershed).  
Encourage dispersed camping and other high-impact recreation uses outside this zone.

## **Maps Referenced in Specific Standards and Guidelines or Used in Implementation Direction**

The following maps are referenced in the Revised Plan. They are provided in this appendix as a general reminder of this data, but for project planning, larger scale maps will be generated that will better inform the decision maker. These maps are inventories that were conducted at the forestwide scale and will be updated as additional information, and more scale appropriate information, is collected. Since these maps are inventories and not Revised Plan decisions, changes are considered to be administrative corrections.

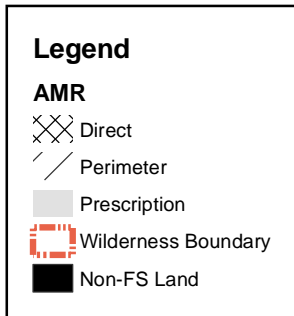
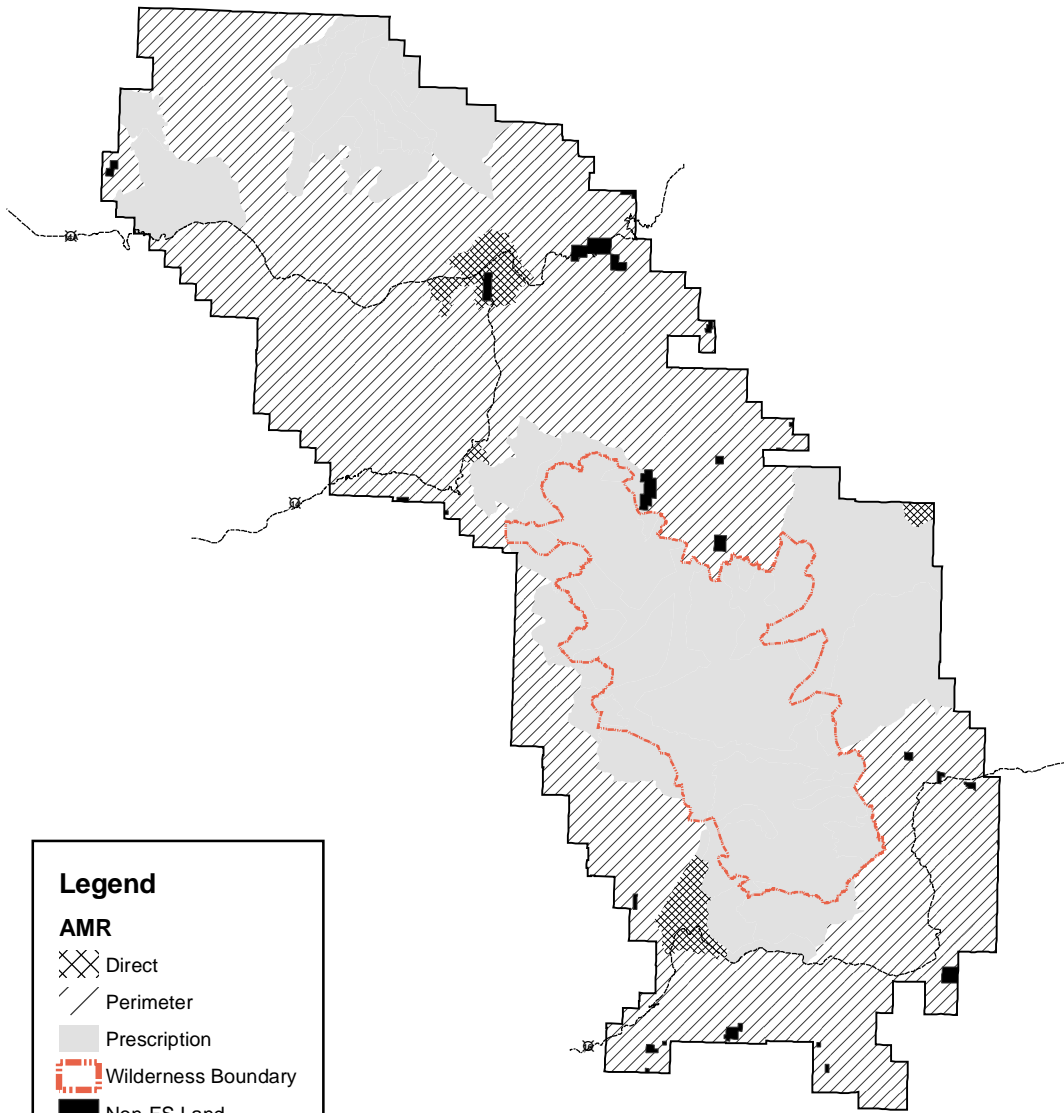
**Bighorn National Forest  
Elk Security Areas  
Potential and Existing**

**Legend**

- Potential Elk Security
- Existing Elk Security
- Alt D Management Areas
- Forest Boundary
- Perennial Streams
- Highways

0 2 4 8 12 16 Miles

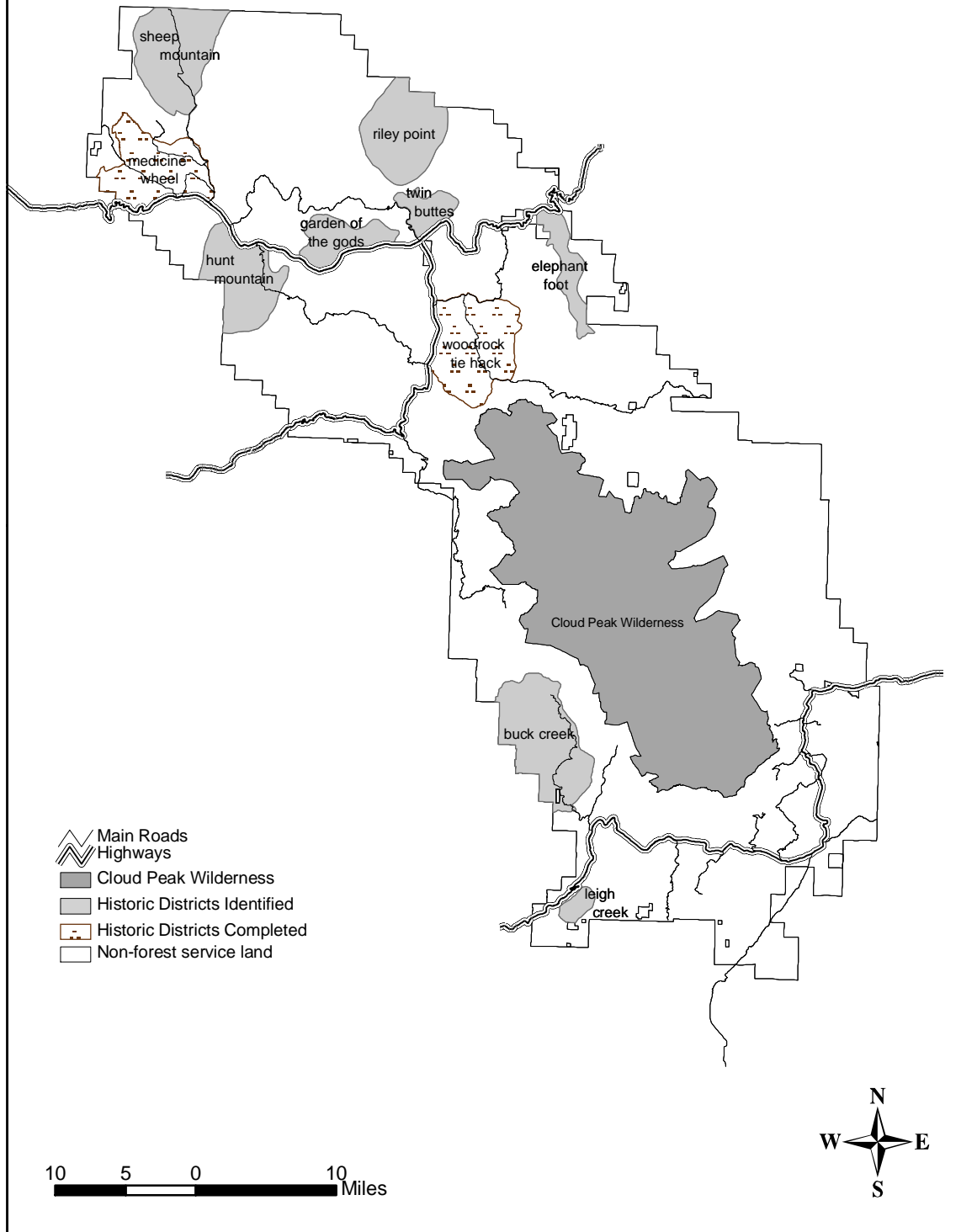
# Bighorn National Forest Appropriate Management Response (AMR)



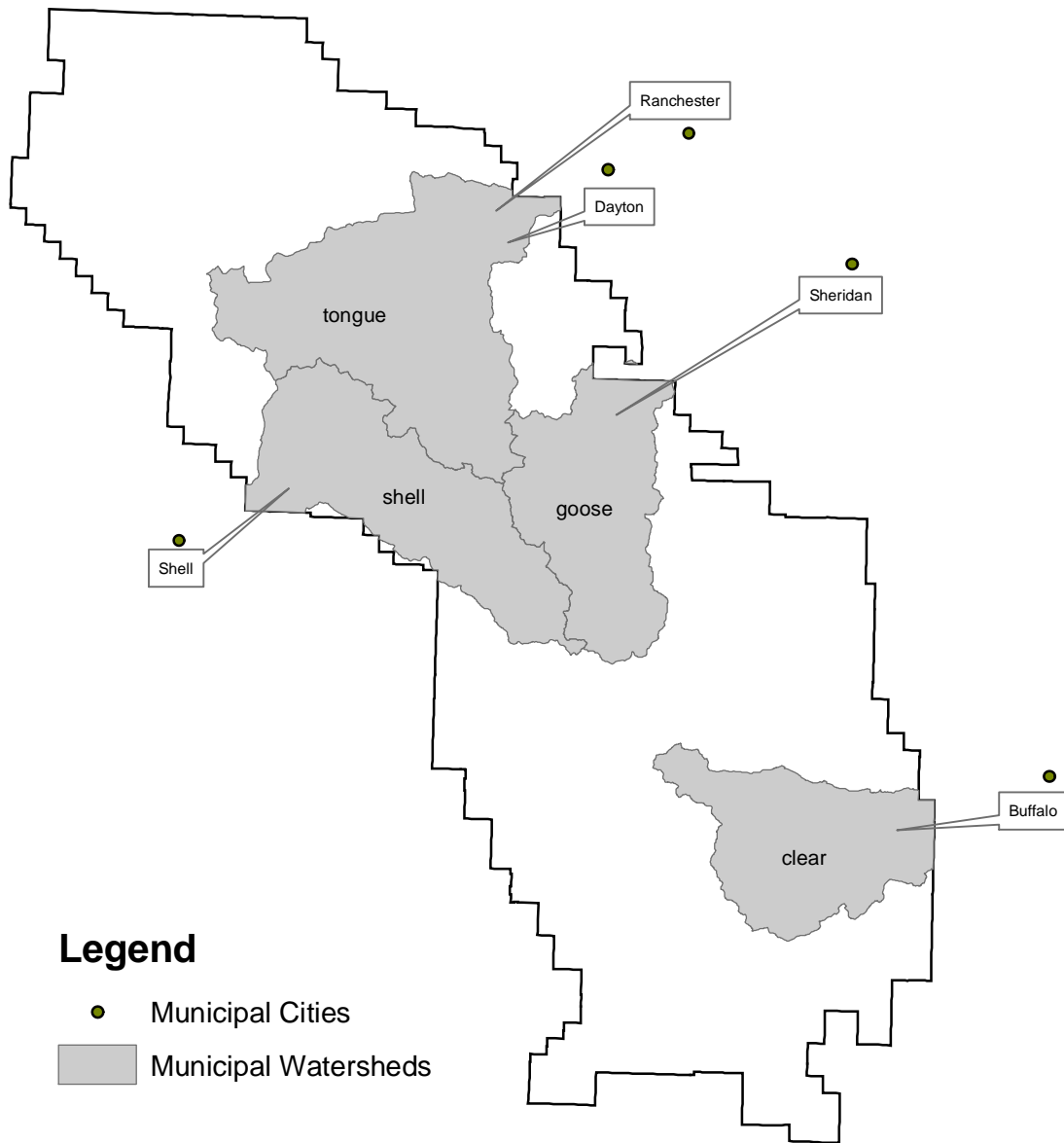
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Miles



# Bighorn National Forest Historic Districts

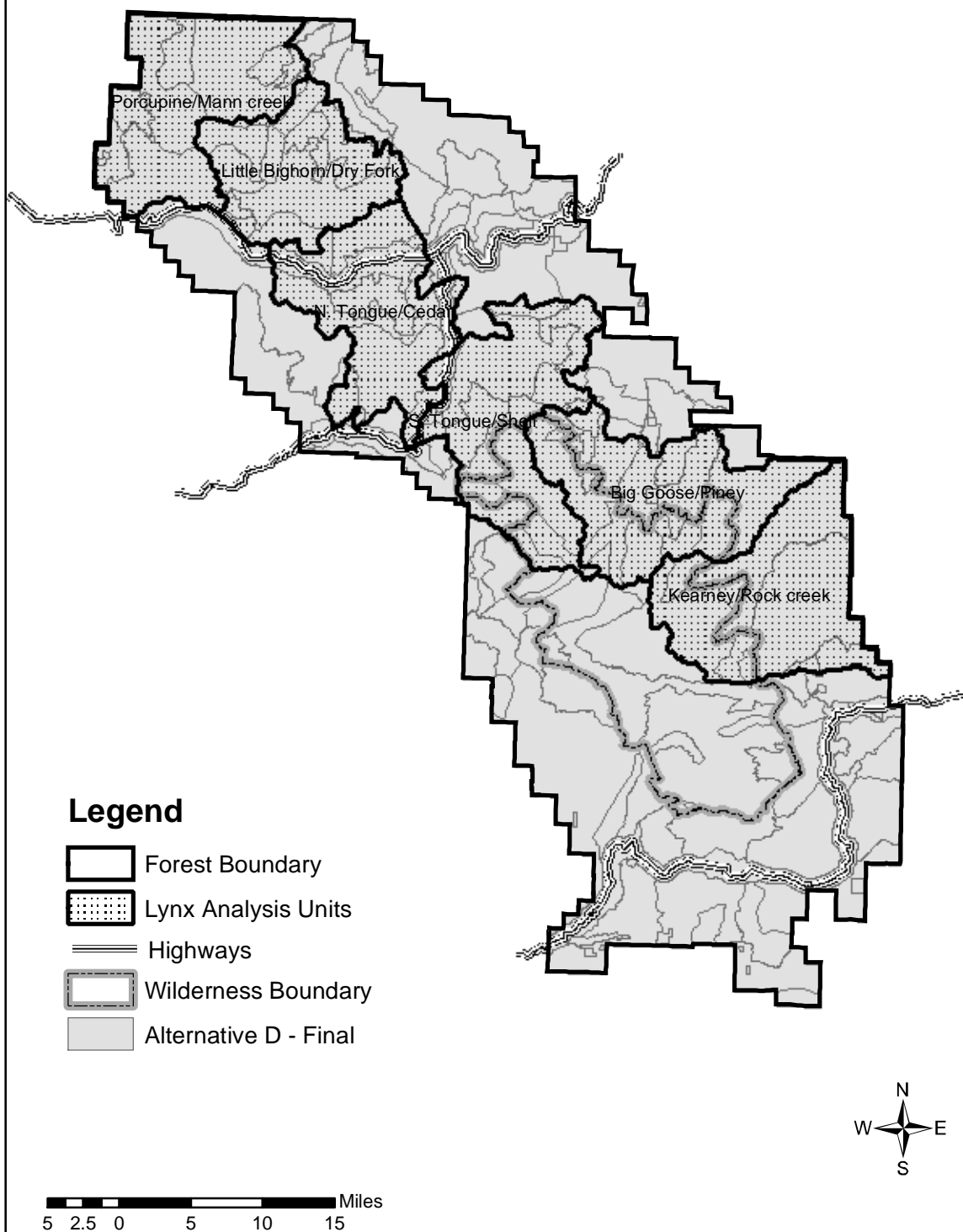


# Bighorn National Forest Municipal Watersheds

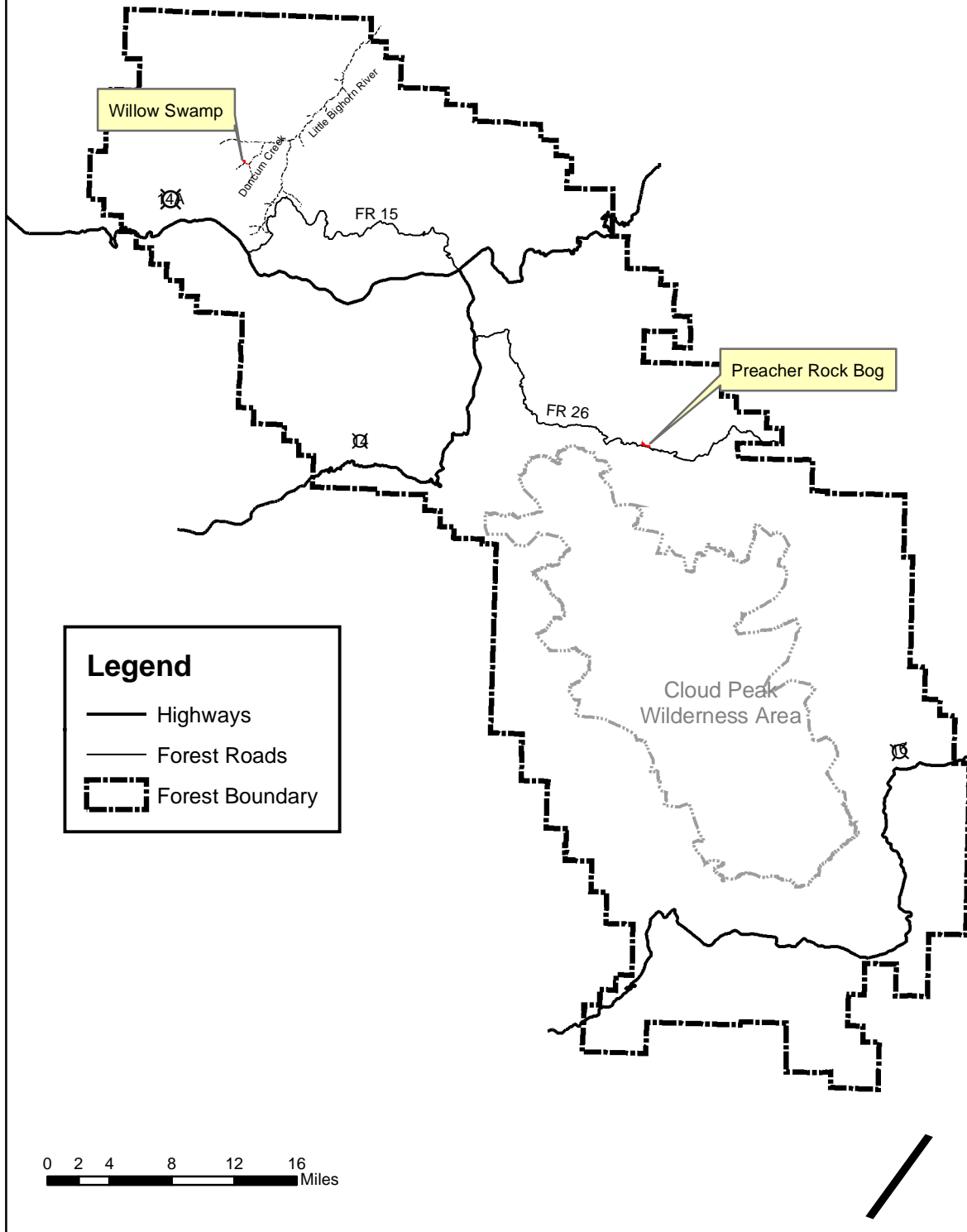




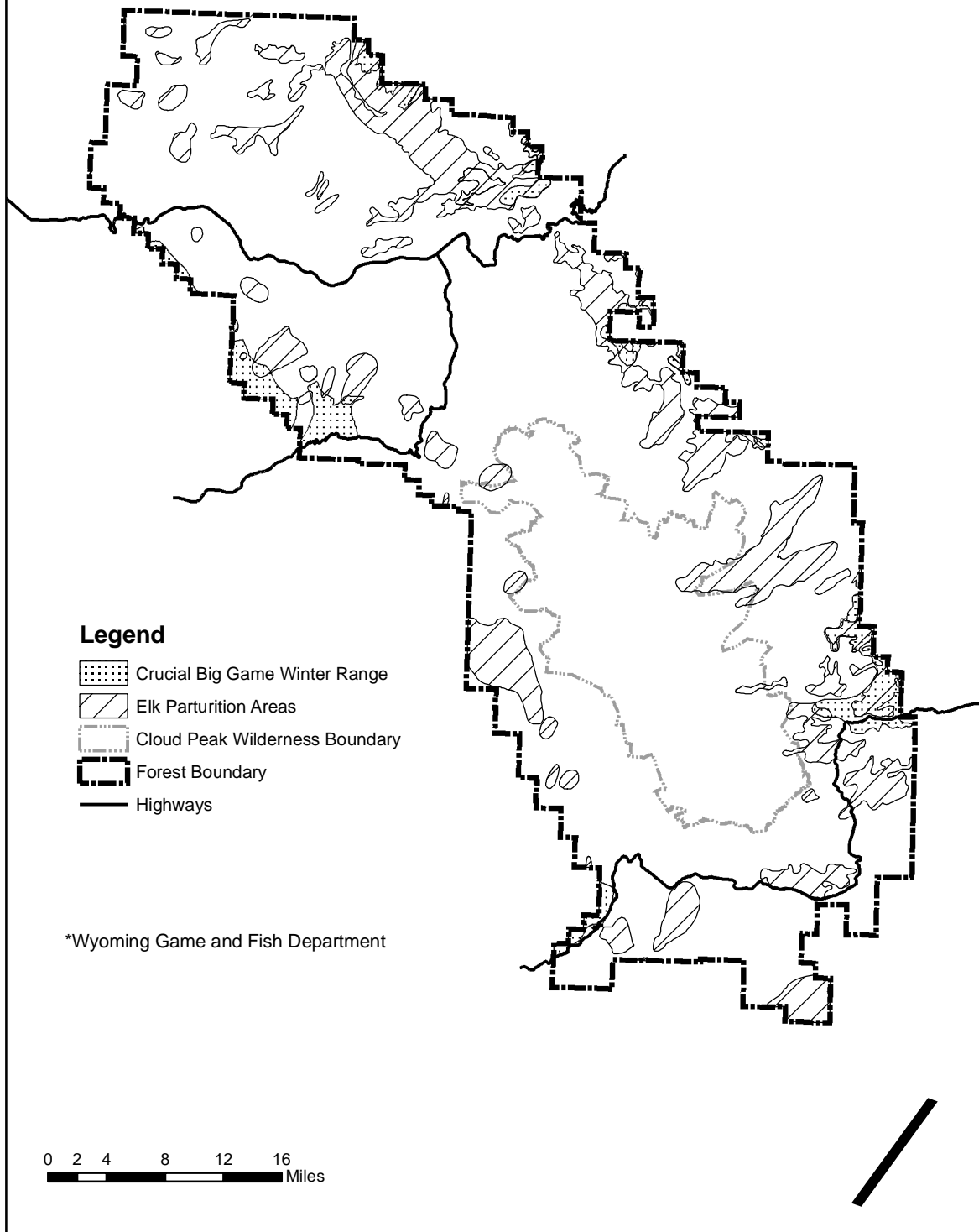
# Bighorn National Forest Lynx Analysis Units



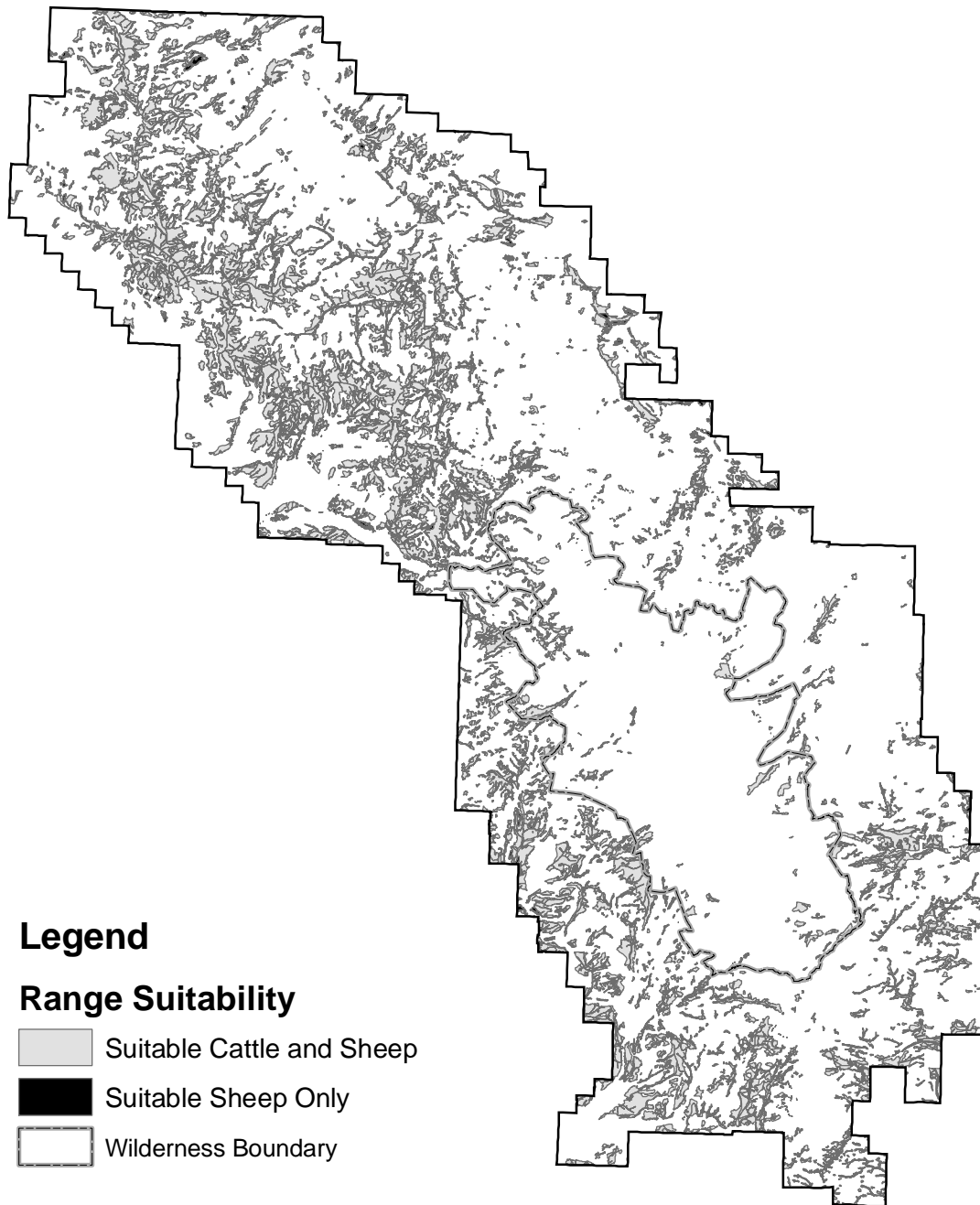
# Bighorn National Forest Preacher Rock Bog and Willow Swamp (Biological Diversity Guideline #7)



# Bighorn National Forest Crucial Big Game Winter Range and Elk Parturition Areas (from WGFD\*)



# Bighorn National Forest Range Suitability



5 2.5 0 5 10 15 Miles

